



November 2012

## **INACCURACIES IN FUNK AND BOLTON'S LETTER ABOUT CONOWINGO DAM**

Included among many flaws in Funk and Bolton's letter (September 20, 2012) to the Kent County commissioners are multiple erroneous assertions about the Conowingo Dam's nutrient contributions to the Chesapeake Bay and the glaringly inaccurate statement that nutrient loads from the dam were not factored into the TMDL. The letter also uses faulty reasoning in its proposals: it is unclear, for example, how weighing in on the Regional Greenhouse Gas Initiative has anything to do with the Bay Total Maximum Daily Load and Watershed Implementation Plan processes. Overall, the errors and other weaknesses drive home how mistaken counties would be to consider policy changes based on such a flawed strategy document.

### **Inaccuracies in Funk and Bolton letter:**

#### **1. Funk and Bolton asserts (page 1, paragraph 1):**

"ENR discharge limitations...remove only a fraction of a single percentage of the nutrient loading to the Chesapeake Bay and will not enhance the water quality of the Bay."

##### *In reality:*

ENR systems that have been and are planned to be implemented on wastewater treatment plants in Maryland alone are estimated to reduce nitrogen and phosphorus by 9,638,103 lbs and 1,046,294 lbs per year compared to what loads would be if the plants were not upgraded.<sup>1</sup> If we compare these reductions with estimates by the U.S. Geological Service (USGS) of total nutrient loads to the Bay in 2010 (the most recent year for which data are available) of 278 million pounds of nitrogen and 16 million pounds of phosphorus,<sup>2</sup> these reductions represent 3.4 and 6.5% respectively.

#### **2. Funk and Bolton asserts (page 1, paragraph 1):**

"The ENR requirements exceed MDE's authority under the federal Clean Water Act..."

##### *In reality:*

The Maryland Department of the Environment (MDE) has been granted authority by the United States Environmental Protection Agency (EPA) to issue NPDES permits in accordance with statutory requirements promulgated by the Clean Water Act (CWA). The Environment Article, Title 9, Subtitle 3, Part IV, Annotated Code of Maryland requires a discharge permit for any activity that could cause or increase the discharge of pollutants into waters of the State. The Code of Maryland Regulations (COMAR) 26.08.04 requires MDE to administer the NPDES program as part of the State's own discharge permit system.

Furthermore, Senate Bill 320 (Bay Restoration Fund)<sup>3</sup> was signed into law on May 26, 2004, which created a dedicated fund to upgrade Maryland's wastewater treatment plants. As codified in Md. Ann. Code § 9-1605.2, the Maryland legislature mandated that State discharge permits require an owner of a wastewater facility to operate in a manner that optimizes nutrient removal capacity to achieve ENR performance levels. That legislation also provides up to 100% of the funding for such ENR projects.

### **3. Funk and Bolton asserts (page 2, paragraph 2):**

"EPA's TMDL allocation is fatally flawed because it neglects to take into account the largest contribution source to nutrient loading to the Bay...the Conowingo Dam during major storm events and on a day-to-day basis."

*In reality, there are two major inaccuracies in Funk and Bolton's above statement:*

1. The EPA explicitly included the dam and pollution removal capacity in the TMDL (see Appendix T of the TMDL) and considered it throughout the TMDL's development<sup>4</sup>. The models used monitoring stations located in various river systems throughout the Bay to develop, calibrate, and verify Phase 5.3 of the Chesapeake Bay Watershed Model.<sup>5</sup> One of those stations is located downstream from the Conowingo Dam.<sup>6</sup> Furthermore, the states and EPA agreed this issue would be revisited during the 2017 "midpoint re-evaluation" for the Bay TMDL.
2. The dam is not the largest contribution source, the Susquehanna River is. The dam, historically, has been the Bay's best BMP, removing much of what normally would have flowed downstream, particularly phosphorus and sediment.

### **4. Funk and Bolton asserts (page 2, paragraph 2):**

"The loading from [Conowingo Dam] significantly eclipses the loading from all Maryland sources."

*In reality:*

The USGS estimates that over the last 10 years, the Susquehanna has contributed an average of 158 million pounds of nitrogen, 9.6 million pounds of phosphorus and 4.8 million tons of sediment. Maryland's BayStat web page indicates that in 2010, Maryland sources contributed roughly 52 million pounds of nitrogen, 3.2 million pounds of phosphorus and 0.7 million tons of sediment, according to model estimates. Though the loads from the Susquehanna River are higher, they do not "eclipse" Maryland sources.<sup>7</sup>

### **5. Funk and Bolton asserts (page 2, paragraph 3):**

"During the aftermath of Tropical Storm Lee, 31% of the nitrogen loading, 61% of the phosphorus loading and 78% of the sediment loading of the Bay for 2011 occurred and emanated from above the Conowingo Dam. Forty percent (40%) of the remaining nutrient and sediment loading in 2011 emanated from above the Conowingo Dam."



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*In reality:*

Funk and Bolton misinterpreted the percentages in the above statement. The percentages that Funk and Bolton cites in the above statement (which come from Table 2 of the Hirsch 2012 report<sup>8</sup>) do not refer to *total loads to the Bay* in 2011. The percentages actually refer to the percentage of loads that came from the Susquehanna in the aftermath of Tropical Storm Lee (i.e. 31% of the Susquehanna's nitrogen contribution in 2011 came in the aftermath of Tropical Storm Lee - not 31% of the Bay's total nitrogen loading).

Regarding the Funk & Bolton statement that "Forty percent (40%) of the remaining nutrient and sediment loading in 2011 emanated from above the Conowingo Dam," Dr. Robert M. Hirsch, whose report is cited by Funk and Bolton, said in an email to Chesapeake Bay Foundation, *"I have no idea what the basis of this statement might be and I have no idea what it means. I find no reference to 40% in the report except for a discussion of phosphorus trapping by the reservoir described in a 1997 USGS report. This statement is certainly not based on any findings in my report."*

#### **6. Funk and Bolton asserts (page 4, paragraph 1):**

"[T]he hydroelectric dams in the Chesapeake Reservoir...deliver the vast majority of the nutrient loading to the Bay...Yet to date, not one cent (\$.01) is budgeted to dredge and remove such nutrient laden sediments before they are flushed into the Bay."

*In reality:*

Recognizing the problem associated with sediments behind the Conowingo Dam, in June 2011, the U.S. Army Corps of Engineers and the state of Maryland partnered to conduct a three year, \$1.4M Lower Susquehanna River Watershed Assessment that seeks to identify options for addressing this issue.<sup>9</sup> The most capable and appropriate agencies are assessing a practicable and effective strategy to remove or reduce the volume of sediment and nutrients going into the Bay. Dredging is but one option, of many, that is being considered. The approach will be based on sound science and assessment, and therefore requires that funding goes first to the strategy, then to the implementation.

#### **7. Funk and Bolton asserts (page 4, paragraph 3):**

"The sediment and nutrient loading that occurs after such storm events [as Hurricane Ivan and Tropical Storm Lee] completely destroys any Bay grass planting and any oyster restoration initiatives that may have taken place between such storm events."

*In reality:*

There is no evidence to support this statement. In fact, in the aftermath of storm events such as Hurricane Ivan, Tropical Storm Lee, and Hurricane Sandy, the Maryland Department of Natural Resources (DNR) has reported a positive outlook for oyster reefs.



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The 2011 Fall Oyster Survey conducted by the state found that *“oyster populations are doing well in most parts of Maryland’s Chesapeake Bay, thanks to high survivorship of yearling oysters from last year’s good spat set... Although high freshwater flows from heavy rains in the spring and two tropical storms in late summer impacted oysters in the Upper Bay, this represented a relatively small proportion of the total oyster population. The lower salinities proved to be beneficial to the majority of oysters in Maryland by reducing disease impacts to allow the yearling oysters to thrive.”*<sup>10</sup>

Similarly, the outlook on oysters planted in the 2012 season was very positive after Hurricane Sandy. Stephan Abel, executive director of the Oyster Recovery Partnership, stated: “Fortunately, the storm happened after the Oyster Recovery Partnership and its coalition of partners completed our large-scale oyster restoration and spat-on-shell planting efforts for the 2012 season and after natural spawning occurred.”<sup>11</sup>

Similarly, researchers were pleased to find that the huge, dense underwater grass bed on the Susquehanna Flats, which had increased three-fold in size since 1991, persisted through the major storms and demonstrated how resilient such grass beds can be to water quality disturbances.<sup>12</sup>

#### **8. Funk and Bolton asserts (p4, paragraph 4):**

“Such nutrient laden sediments continue to release nutrients over a long period of time...such nutrients have a longer term deleterious effect on water quality...”

*In reality:*

Studies show the Chesapeake Bay has a fairly short memory when it comes to nutrient inputs. By way of example, dissolved oxygen in the Bay in 2012 was among the best we have seen since 1985, suggesting that concerns about the impacts of tropical storms Irene and Lee did not materialize.

#### **9. Funk and Bolton asserts (page 6, paragraph 6):**

“Maryland’s local governments could be required to make ill conceived expenditures to implement RGGI when a significant portion of the greenhouse gases in Maryland migrate here from power plants and other operations in the Ohio River Valley states.”

*In reality:*

This statement demonstrates a poor understanding of the Regional Greenhouse Gas Initiative (RGGI). First, the RGGI program has no direct relation to the implementation of the Bay TMDL and state WIP. It was designed to reduce emissions of greenhouse gases (primarily CO<sub>2</sub>) associated with climate change by requiring that power plants (large emitters of CO<sub>2</sub>) purchase emissions allowances at an auction.<sup>13</sup> RGGI is a voluntary, cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Second, CO<sub>2</sub> does not “migrate” to Maryland and cause impacts solely in the state. CO<sub>2</sub> emissions are ubiquitous and present global problems including sea level rise. States involved in the initiative are simply trying to reduce a global problem. Third, at the most recent RGGI auction on June 6, 2012, Maryland sold



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4,458,850 allowances of greenhouse gas emissions at \$1.93 per allowance, raising over \$8 million dollars. The money is spent on energy efficiency, conservation, and other demand response programs; residential energy bill assistance; renewable energy deployment; and climate change outreach and education.<sup>14</sup>

Thus, Maryland's participation in RGGI actually stimulates Maryland's economy at minimal cost to generators of CO<sub>2</sub>. The concerns raised by Funk & Bolton are misleading and speculative.

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<sup>1</sup> See BayStat data at: <http://www.mde.state.md.us/programs/Water/BayRestorationFund/Documents/Web%20BRF-WWTP%20Update%20August%202012.pdf> and <http://www.mde.state.md.us/programs/Water/BayRestorationFund/Documents/TNchart.pdf>.

<sup>2</sup> Data available at: <http://chesapeake.usgs.gov/featuremeasuringnutrient-sedimentloads.html>.

<sup>3</sup> Text of bill available at: <http://mlis.state.md.us/2004rs/billfile/sb0320.htm>.

<sup>4</sup> See this presentation from April 2010: [http://archive.chesapeakebay.net/pubs/calendar/47043\\_04-05-10\\_Presentation\\_11\\_10559.pdf](http://archive.chesapeakebay.net/pubs/calendar/47043_04-05-10_Presentation_11_10559.pdf).

<sup>5</sup> Bay TMDL Section 5.2.2, page 5-12; (USEPA 2010j); Figure 5-6; Section 5.2.5, page 5-18.

<sup>6</sup> Station ID 01578310; <http://cbrim.er.usgs.gov/maps/index.html>.

<sup>7</sup> Find more information about Maryland's contribution at: <http://www.baystat.maryland.gov/>.

<sup>8</sup> Hirsch 2012; <http://pubs.usgs.gov/sir/2012/5185/>.

<sup>9</sup> U.S. Army Corps of Engineers, *Lower Susquehanna River Watershed Assessment*, Draft Project Management Plan (June 2011). Available at: <http://mddnr.chesapeakebay.net/LSRWA/Docs/LSWRA%20PMP%20%209.23.11.pdf>.

<sup>10</sup> See surveys at: <http://www.dnr.state.md.us/fisheries/oysters/monitor/reports.asp>.

<sup>11</sup> See full article at: <http://edgewater.patch.com/articles/sandy-s-impact-on-bay-oysters-less-than-expected>.

<sup>12</sup> See Virginia Institute of Marine Sciences website at: [http://www.vims.edu/newsandevents/topstories/sav\\_2011\\_report.php](http://www.vims.edu/newsandevents/topstories/sav_2011_report.php).

<sup>13</sup> Find information about the RGGI at: <http://www.rggi.org/rggi>.

<sup>14</sup> Summary of Maryland's plan available at: [http://www.rggi.org/rggi\\_benefits/program\\_investments/Maryland](http://www.rggi.org/rggi_benefits/program_investments/Maryland).



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